

Amendments to the Claims

Kindly add new claims 11-20 as set forth below, and cancel claims 1-10 without prejudice. In accordance with current amendment practice, a complete listing of claims is provided herein.

1-10. (Canceled)

11. (New) A hybrid prediction method usable in parallel computing processors for predicting a value to be produced by an anticipated execution of an instruction comprising:

storing, in a first table, a current actual value resulting from a most-recent execution of the instruction, a current stride determined from the current actual value and a previous actual value produced by a prior execution of the instruction, and a stride history pattern for the instruction, the stride history pattern representing a pattern of strides resulting from prior executions of the instruction, wherein strides, including the current stride, of the pattern of strides are stored in a stride field of the first table;

selecting a stride from the stride field of the first table; and

computing a predicted value for the value to be produced by the anticipated execution of the instruction, the computing using the stride from the selecting and the current actual value, wherein the predicted value from the computing is essentially equal to a prediction result from one of a last value prediction, a stride-based value prediction, and a stride-history-pattern-based value prediction.

12. (New) The method according to claim 11, wherein the method further comprises:

calculating the current stride as a difference between the current actual value and another actual value resulting from an execution of the instruction prior to the most-recent execution of the instruction; and

updating at least one counter of a plurality of saturating counters in a stride pattern history table according to the current stride, the plurality of saturating counters being associated with the stride history pattern.

13. (New) The method according to claim 12, wherein:

the stride from the selecting corresponds to a counter having a count exceeding a threshold, the counter being one of the plurality of saturating counters in the stride pattern history table; and

the computing further comprises adding the current actual value and the stride from the selecting.

14. (New) The method according to claim 11, wherein the method further comprises:

if an entry for the instruction from the storing is not found in the first table, initializing a plurality of saturating counters in a stride pattern history table associated with the instruction such that the predicted value from the computing is essentially equal to the prediction result obtained from the last value prediction for a period before a comparison of the saturating counters to a threshold indicates detection of the stride history pattern; and

updating at least one of the plurality of saturating counters upon a subsequent occurrence of the stride history pattern resulting from one or more subsequent executions of the instruction.

15. (New) The method according to claim 12, wherein the updating further comprises:

incrementing a counter of the plurality of saturating counters in the stride pattern history table, wherein the counter is associated with the current stride;

decrementing at least one other counter of the plurality of saturating counters in the stride pattern history table, wherein the at least one other counter is associated with another of the strides stored the stride field; and

wherein the stride from the selecting corresponds to one of the plurality of saturating counters having a greatest count if the greatest count exceeds a threshold, and signaling to indicate that the value to be produced by the anticipated execution of the instruction cannot be predicted if none of the plurality of saturating counters has a count exceeding the threshold.

16. (New) A hybrid prediction system comprising:

a first table having at least one entry, each of the at least one entry comprising a current actual value resulting from a most-recent execution of an instruction, a plurality of stride fields, a stride history pattern field; and

a pattern history table for storing a plurality of counters associated with the stride fields of the first table, the pattern history table being arranged to be addressable by a two-table look-up mechanism using the stride history pattern field of the first table to select an entry in the pattern history table, wherein the counters are arranged for being updated according to occurrences of repeated stride patterns.

17. (New) The hybrid prediction system according to claim 16 wherein the plurality of stride fields comprises a number of strides in a range, the range being greater than 3 and less than 7.

18. (New) A sub-unit for use in microprocessor devices having at least one prediction system according to claim 17.
19. (New) A microprocessor device having at least one sub-unit according to claim 18.
20. (New) A computer system having a microprocessor device according to claim 19.